

**CLAIMS**

1. A turbine burner (1) comprising
  - a secondary feed unit for the supply of a secondary or backup mixture and the discharge of said mixture from an opening (4) to a combustion zone (6) facing said opening (4);
  - a primary supply unit comprising a primary mixture channel (24) intended for the supply of said primary mixture, arranged concentrically with said secondary feed unit;said burner (1) being characterised in that said primary mixture channel (24) comprises an annular wall (28) capable of conveying said primary mixture directly to said combustion zone (6) facing said opening (4).
2. A burner according to claim 1, in which said secondary feed unit comprises an axial air tube (14) terminating in an axial swirler (18).
3. A burner according to claim 2, in which said annular wall (28) of the primary mixture channel (24) conveys said primary mixture directly downstream of the opening (4) of said axial swirler (18).
4. A burner according to any one of the preceding claims, in which said annular wall (28) of the primary mixture channel (24) has a truncated cone-shaped end portion (30), converging in the direction of discharge of the

primary mixture.

5. A burner according to any one of the preceding claims, in which said primary mixture channel (24) comprises a nozzle ring (26) provided with primary mixture holes (32) having axes not parallel to the axis of said ring.

6. A burner according to claim 5, in which said primary mixture holes have an axis inclined by an angle (B) equal to 17°.

7. A burner according to claim 6, in which said primary mixture channel has an axial length (L) equal to 182.8 mm.

8. A burner according to claim 5, in which said primary mixture holes have an axis inclined by an angle (B) equal to 12°.

9. A burner according to claim 8, in which said primary mixture channel has an axial length (L) equal to 194.85 mm.

10. A burner according to any one of the preceding claims, in which said secondary feed unit comprises a sleeve (11) connected to a gas-steam tube (10) intended for the supply of a secondary mixture comprising natural gas (Gn) and steam (S), said sleeve (11) comprising gas-steam holes (12).

11. A burner according to claim 10, in which said gas-steam holes are twelve in number.

12. A burner according to claim 10, in which said gas-steam holes are sixteen in number.

13. A burner according to claim 10, in which said gas-steam holes face towards a baffle (20) capable of  
5 preventing this secondary mixture from being drawn to the primary mixture channel (24).

14. A burner according to any one of the preceding claims in which said secondary feed unit comprises a spray nozzle (8) intended for the supply of a secondary mixture  
10 composed of gas oil (O) or gas oil and water (O+W) or intended for the supply of air (A).

15. A burner according to any one of the preceding claims, also comprising a pilot unit comprising a plurality of pilot tubes (42) capable of supplying  
15 natural gas (Gn).

16. A burner according to any one of the preceding claims, comprising at least one pair of igniters (44).

17. A burner according to any one of the preceding claims, also comprising a diagonal swirler (36).